

**TECHNICAL REVIEW DOCUMENT
For
RENEWAL TO OPERATING PERMIT 05OPRB282**

Public Service Company of Colorado – Greasewood Compressor Station
Rio Blanco County
Source ID 1030086

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Revised July, August and October 2012

Reviewed by:

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I. Purpose:

This document will establish the basis for decisions made regarding the applicable requirements, emission factors, monitoring plan and compliance status of emission units covered by the renewed operating permit proposed for this site. The current Operating Permit was issued on April 1, 2007. The expiration date for the permit was April 1, 2012. However, since a timely and complete renewal application was submitted, under Colorado Regulation No. 3, Part C, Section IV.C all of the terms and conditions of the existing permit shall not expire until the renewal Operating Permit is issued and any previously extended permit shield continues in full force and operation. This document is designed for reference during the review of the proposed permit by the EPA, the public, and other interested parties. The conclusions made in this report are based on information provided in the renewal application submitted March 29, 2011, comments on the draft permit and technical review document received on August 28, 2012, previous inspection reports and various e-mail correspondence, as well as telephone conversations with the applicant. Please note that copies of the Technical Review Document for the original permit and any Technical Review Documents associated with subsequent modifications of the original Operating Permit may be found in the Division files as well as on the Division website at <http://www.colorado.gov/cs/Satellite/CDPHE-AP/CBON/1251596446069>. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating

permit without applying for a revision to this permit or for an additional or revised construction permit.

II. Description of Source

This facility is classified as natural gas compressor station under the Standard Industrial Classification 4922. This facility consists of four natural gas-fired compressor engines for the transmission of natural gas. There is also a natural gas-fired internal combustion engine used as emergency generator that is included in Section II of the permit.

The facility is located at 9949 County Road 76, in Rio Blanco County, Colorado. The area in which the plant operates is designated as attainment for all criteria pollutants.

Utah is an affected state within 50 miles of the plant. Flat Tops Wilderness Area, a Federal Class I designated area, is within 100 kilometers of the plant. In addition, Dinosaur National Monument is federal land within 100 kilometers of the facility. This area has been designated by the State to have the same sulfur dioxide increment as federal Class I designated areas.

The summary of emissions that was presented in the Technical Review Document (TRD) for the original permit has been included here. There has been no equipment added to the facility that would affect the previous analysis of potential to emit, however, minor corrections were made to the table to appropriately reflect equipment. Potential to emit (PTE) is shown in the table below:

Emission Unit		Potential to Emit (tons/yr)			
ID No.	Startup Date	NO _x	CO	VOC	HAPS
E001	1967	57.21	53.77	0.43	See Table on Page 12
E002	1978	46.04	47.09	0.37	
E003*	Nov. 2004	70.10	61.92	0.49	
E004*	Nov. 2004	70.10	61.92	0.49	
Emergency Generator (24 hp)**		0.14	0.24	Negl.	
Two (2) space heaters (0.266 MMBtu/hr, each)**		0.23	0.19	0.01	
Total		243.82	225.13	1.79	2.59

*These engines commenced operation in 1973 at another location in Colorado.

** These sources are exempt from APEN reporting and permitting requirements. However, since the facility is close to the major stationary source threshold emissions from these units are included here. Emissions from the emergency generator are based on 500 hours per year (in accordance with the September 6, 1995 EPA Memo, "Calculating Potential to Emit (PTE) for Emergency Generators"). Emissions from the heaters are based on 8760 hrs/yr of operation.

Potential to Emit indicated in the above table is based on the following information:

Criteria Pollutants

Emissions from E001 and E002 are based on the emission factors specified in the permit, design rate and 8760 hours per year of operation. Emissions from engines E003 and E004 are based on permitted emissions. Emissions from the emergency generator are based on the design rate of the unit, AP-42 emission factors (Section 3.2 (dated 7/00), Table 3.2-2) and 500 hours per year of operation (in accordance with the September 6, 1995 EPA Memo, "Calculating Potential to Emit (PTE) for Emergency Generators"). Emissions from the space heaters are based on the design rate of the unit, AP-42 emission factors (Section 1.4 (dated 7/98), Tables 1.4-1 and 1.4-2) and 8760 hours per year of operation.

Hazardous Air Pollutants (HAP)

The breakdown of HAP emissions by emission unit and individual HAP is provided on page 12 of this document. As indicated in the footnotes for the table on page 12, HAP PTE is based on design rate, 8760 hours per year of operation and the most conservative emission factor from AP-42 or HAPCalc 2.0. Note that HAPCalc 2.0 emission factors are not significantly different from the HAPCalc 3.0 factors.

Actual emissions are shown in the table below and are based on APENs submitted for the data years indicated in the table.

Emission Unit	Data Year	PM/PM ₁₀ / PM _{2.5}	SO ₂	NO _x	CO	VOC	HAPS
Engine E001	2010	0	0	0	0	0	0
Engine E002	2009			0.01	0.01		NR
Engines E003 & E004	2009	0.05	0.003	24.4	21.5	0.17	NR
Total		0.05	0.003	24.42	21.51	0.17	

NR = not reported.

MACT Requirements

Although the facility is not a major source for HAPS, the EPA has been promulgating rules for area sources (sources that are not major). Those requirements that could potentially apply to this facility are discussed below:

Natural Gas Transmission and Storage Facilities (40 CFR Part 63 Subpart HHH)

The Greasewood Compressor Station is considered a natural gas transmission facility and is potentially subject to the requirements in 40 CFR Part 63 Subpart HHH. The provisions in 40 CFR Part 63 Subpart HHH apply to glycol dehydrators located at major sources of HAPs. The facility is not a major source of HAPs and there is no glycol dehydrator at the facility and as a result these requirements do not apply. Final revisions to the requirements in 40 CFR Part 63 Subpart HHH were published in the

Federal Register on August 16, 2012 but these revisions have not changed the fact that the provisions in Subpart HHH only apply to glycol dehydrators located at major sources of HAPs.

Paint Stripping and Miscellaneous Surface Coating at Area Sources (40 CFR Part 63 Subpart HHHHHH)

The final rules for paint stripping and miscellaneous surface coating were published in the Federal Register on January 9, 2008 and apply to area sources that perform paint stripping operations using methylene chloride, spray application of coatings to motor vehicles and mobile equipment and spray application of coatings that contain the target HAPS (chromium, lead, manganese, nickel or cadmium). As indicated in 40 CFR Part 63 § 63.11170(a)(2) and (3), spray applications (to motor vehicles and using coatings that contain the target HAPS) that meet the definition of facility maintenance are not subject to the requirements in this rule. The Division considers that any spray coatings of motor vehicles and mobile equipment and spray application of coatings that contain the target HAP at this facility would meet the definition of facility maintenance. The source indicated that no paint stripping activities occur at the facility; therefore, the provisions in 40 CFR Part 63 Subpart HHHHHH do not apply.

Reciprocating Internal Combustion Engines (40 CFR Part 63 Subpart ZZZZ)

The reciprocating internal combustion engine (RICE) MACT was signed as final on February 26, 2004 and was published in the Federal Register on June 15, 2004. Under this rulemaking only RICE that were > 500 hp and located at major sources of HAPS were subject to the requirements. Subsequent revisions were made to the RICE MACT to address new engines ≤ 500 hp located at major sources and new engines of all sizes at area sources (final rule published January 18, 2008), existing compression ignition engines ≤ 500 hp at major sources and all sizes at area sources (final rule published March 3, 2010) and existing spark ignition engines ≤ 500 hp at major sources and all sizes at area sources (final rule published August 20, 2010).

There is one natural gas-fired emergency generator included in the insignificant activity list which would qualify as existing (construction commenced prior to June 12, 2006) and therefore would be subject to requirements in the RICE MACT. As a result this engine will be removed from the insignificant activity list and included in Section II of the permit.

In addition, the natural gas fired engines included in Section II of the current permit are considered existing (construction commenced prior to June 12, 2006) and therefore also subject to requirements in the RICE MACT.

Gasoline Dispensing Facilities (40 CFR Part 63 Subpart CCCCCC)

EPA promulgated National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities in 40 CFR Part 63 Subpart CCCCCC which were published in the Federal Register on January 10, 2008 and apply to gasoline

dispensing facilities (GDF) located at area source (minor sources for HAPS). There are no gasoline storage tanks listed in the insignificant activity list for this facility, therefore, these requirements do not apply.

Boiler MACT for Area Sources (40 CFR Part 63 Subpart JJJJJ)

EPA promulgated National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers on March 21, 2011. Unlike the Boiler MACT for major source (40 CFR Part 63 Subpart DDDDD), this rule only applies to boilers, not process heaters. It appears that there is no equipment at this facility that would meet the definition of a boiler. In addition, this rule does not apply to gas-fired boilers. All of the fuel burning equipment at this facility burns natural gas. Therefore, this rule does not apply to any equipment located at this facility.

Compliance Assurance Monitoring (CAM) Requirements

In the technical review document for the original Title V permit (issued April 1, 2007), the Division indicated that CAM did not apply to any equipment at this facility, since none of the emission units at this facility were equipped with a control device. However, non-selective catalytic reduction (NSCR) devices were installed on the two Waukesha engines as required by Colorado Regulation No. 7, Section XVII.E.3.a.(i). The control devices are not necessary to meet the annual emission limitations that apply to these engines. Therefore, CAM does not apply to these units.

Greenhouse Gas Emissions

The potential-to-emit of greenhouse gas (GHG) emissions from this facility is less than 100,000 TPY CO₂e. Future modifications greater than 100,000 TPY CO₂e may be subject to regulation (Regulation No. 3, Part A, I.B.44).

III. Discussion of Modifications Made

Source Requested Modifications

The source's requested modifications identified in the renewal application were addressed as follows:

March 29, 2011 Renewal Application

In their renewal application, the source requested the following changes:

Section I, Condition 6.1

- The source indicated that there was a typographical error in the serial number for Engine E001. The correction was made as requested. Note that this change was also made in the tables in Appendices B and C.

Section II.3

- Catalysts were installed on E003 and E004 as required by Colorado Regulation No. 7, Section XVII.E.3.a and the source requested that these requirements be included in Section II.3 of the permit. The Division has included the Reg 7 control requirements in the permit as requested. It should be noted that although these engines are identified in the Table in Section I, Condition 6.1 of the permit as site-rated at 484 hp, the control requirements in Reg 7, Section XVII.E.3.a are based on the manufacturer's name-plate design rating, not the site-rating. According to the original Title V permit application (submitted on October 17, 2005), the units are rated at 608 hp, maximum.

August 28, 2012 Comments on the Draft Permit and Technical Review Document

The following changes were made to the permit based on PSCo's comments on the draft permit and technical review document which were submitted on August 28, 2012.

Section II, Conditions 1.2, 1.3, 2.2 and 2.3

- The language in permit conditions related to fuel consumption and hours of operation were inconsistent with regards to the frequency of determining these operating parameters. Therefore, the permit was corrected to specify that determination of hours of operation and fuel consumption would be required on an annual frequency.
- The language in Conditions 1.2 and 2.2 refer to determining the fuel consumption using a facility fuel meter. According to the source, engines E001 and E002 share a fuel meter, therefore, Condition 1.2 and 2.2 were revised to reflect that.

Section II, Conditions 1.4, 2.4 and 3.4

In their comments, PSCo noted that in the Technical Review Document prepared for the initial Title V permit (issued April 1, 2007), the Division had approved the use of data from certain transmission zones (in this case the Greasewood transmission zone) for the Btu content of the natural gas, in lieu of requiring semi-annual testing. Therefore PSCo requested that the Btu sampling requirement be replaced with a requirement to use data from the Greasewood transmission zone as the heat content in the emission calculations. In order to be consistent with other PSCo permit, the Division removed Conditions 1.4, 2.4 and 2.4 and added paragraphs to Condition 2 1.1, 2.1 and 3.1 to indicate that the heat content of the fuel used in the emission calculations shall be based on data from the Greasewood transmission zones.

Other Modifications

In addition to the source requested modifications, the Division has included changes to make the permit more consistent with recently issued permits, include comments made by EPA on other Operating Permits, as well as correct errors or omissions identified during inspections and/or discrepancies identified during review of this renewal.

The Division has made the following revisions, based on recent internal permit processing decisions and EPA comments to the Greasewood Compressor Station Renewal Operating Permit. These changes are as follows:

Page Following Cover Page

- Revised the responsible official, the permit contact and the responsible official's authorized representative.
- Monitoring and compliance periods and report and certification due dates are shown as examples. The appropriate monitoring and compliance periods and report and certification due dates will be filled in after permit issuance and will be based on permit issuance date. Note that the source may request to keep the same monitoring and compliance periods and report and certification due dates as were provided in the original permit. However, it should be noted that with this option, depending on the permit issuance date, the first monitoring period and compliance period may be short (i.e. less than 6 months and less than 1 year).
- Revised to indicate that the permit is issued to "Public Service Company of Colorado" and changed to address under "issued to". This change is also reflected in the headers and footers and in the Reporting Forms in Appendices B and C.

Section I – General Activities and Summary

- Revised Condition 2 to include the most recent version of the AOS for engine replacement.
- Made minor revisions to the language in Condition 3.1 to be more consistent with other permits.
- Updated the CAM language in Condition 5.1.
- The following changes were made to the table in Condition 6.1:
 - Removed the third column labeled "Facility ID". The first column was relabeled "Emission Unit No./Facility ID".
 - The second column was labeled AIRS point number as that is more appropriate.
 - Added the emergency generator that was in the insignificant activity list.
 - Included the heat input ratings (MMBtu/hr) for the engines.

Section II.1 and 2 – White Superior and Climax Engines

- Revisions were made to the RICE MACT (40 CFR Part 63 Subpart ZZZZ) on August 20, 2010 and these revisions apply to the White Superior and Climax engines. The appropriate applicable requirements from the RICE MACT were included in the

permit. Note that these engines are subject to work practice standards (oil and filter change, inspect air cleaner and inspect hoses and belts).

Note that proposed revisions to the RICE MACT were published in the Federal Register on June 7, 2012. It appears that the requirements for these engines are not significantly affected by the proposed rule.

- Since these engines are subject to 40 CFR Part 63 Subpart ZZZZ, these engines are also subject to the MACT general provisions (40 CFR Part 63 Subpart A). Since the engines are not subject to any emission limitations, monitoring requirements, notification and reporting requirements the requirements in §§ 63.7, 63.8, 63.9 and 63.10 do not apply. In addition, since these emission units are existing the requirement in § 63.5 (preconstruction review and notification requirements) does not apply. Finally, Table 8 of Subpart ZZZZ indicates that operation and maintenance requirements in 63.6(e) do not apply. Therefore, the permit will only include the prohibition and circumvention requirements in § 63.4.

Section II.3 – Waukesha Engines

- Removed Condition 3.5 (operation and maintenance requirements), since these engines will be subject to more specific operation and maintenance requirements under MACT Subpart ZZZZ.
- On December 12, 2008, the Colorado Air Quality Control Commission (AQCC) adopted revisions to Colorado Regulation No. 7 to include state-wide requirements for existing internal combustion engines greater than 500 hp. These requirements (installation of non-selective catalytic reduction device and air-fuel controller) apply to the Waukesha engines and have been included in the draft permit.

In general, the Division has included requirements to monitor and record operating parameters for engines equipped with control devices. However, since the source is not taking credit for the control device in either its permitted emission limits or to calculate actual emissions for fees, no such monitoring will be included in the permit.

Note that in the December 12, 2008 revisions this requirement was intended to be a **state-only requirement**. However, on January 7, 2011 the Colorado AQCC indicated their intention that the control requirements for rich burn engines > 500 hp (Reg 7, Section XVII.E.3.a) be included as part of the regional haze state implementation plan (SIP). As a result, these requirements will become federally enforceable upon EPA approval of the regional haze SIP.

- Revisions were made to the RICE MACT (40 CFR Part 63 Subpart ZZZZ) on August 20, 2010 and these revisions apply to the Waukesha engines. Emission limitations apply to existing 4-cycle rich burn engines that have a site rated hp greater than 500 hp. Although these engines have a maximum hp greater than 500 hp, when site conditions are taken into account, the engine rating is below 500 hp. Therefore, these engines are subject to work practice standards (oil and filter change, inspect air cleaner and inspect hoses and belts).

Note that proposed revisions to the RICE MACT were published in the Federal Register on June 7, 2012. It appears that the requirements for these engines are not significantly affected by the proposed rule.

- Since these engines are subject to 40 CFR Part 63 Subpart ZZZZ, these engines are also subject to the MACT general provisions (40 CFR Part 63 Subpart A). Since these engines are not subject to any emission limitations, monitoring requirements, notification and reporting requirements the requirements in §§ 63.7, 63.8, 63.9 and 63.10 do not apply. In addition, since these emission units are existing the requirement in § 63.5 (preconstruction review and notification requirements) do not apply. Finally, Table 8 of Subpart ZZZZ indicates that operation and maintenance requirements in 63.6(e) do not apply. Therefore, the permit will only include the prohibition and circumvention requirements in § 63.4.

“New” Section II.4 – Reciprocating Internal Combustion Engine (RICE) MACT Requirements

The requirements in 40 CFR Part 63 Subpart ZZZZ that apply to engines E001 through E004 were included in this condition.

“New” Section II.5 – Emergency Engine

There is one engine included in the insignificant activity list that was considered insignificant under the provisions in Colorado Regulation No. 3, Part C, Sections II.E.3.nnn (emergency generators). However, under the “catch-all” provisions in Regulation No. 3, Part C, Section II.E, sources that are subject to any federal or state applicable requirement, such as National Emission Standards for Hazardous Air Pollutants (NESHAPs), may not be considered insignificant activities. EPA promulgated National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines on August 20, 2010 which apply to this engine; therefore, it can no longer be considered an insignificant activity. Although the unit cannot be considered an insignificant activity, since the Division has not adopted the January 18, 2008, March 3, 2010 or August 20, 2010 revisions to the RICE MACT, all of which address area sources, the engines are still exempt from APEN reporting and minor source construction permit requirements, provided actual, uncontrolled emissions do not exceed the APEN de minimis level. The source submitted information indicated that this engine is still APEN exempt.

The engine description is as follows:

Generac, Model No. 4742, emergency generator engine, rated at 24 hp and 0.26 MMBtu/hr. Serial No. 4124889. Natural gas fired, 4-cycle rich burn engine.

The appropriate applicable requirements for this engine are as follows:

- Except as provided for below, visible emissions shall not exceed 20% opacity (Reg 1, Section II.A.1)

- Visible emissions shall not exceed 30% opacity, for a period or periods aggregating more than six (6) minutes in any sixty (60) minute period, during fire building, cleaning of fire boxes, soot blowing, start-up, process modifications, or adjustment or occasional cleaning of control equipment, when burning coal (Reg 1, Section II.A.4)

Based on engineering judgment, the Division believes that the operational activities of fire building, cleaning of fire boxes and soot blowing do not apply to engines. In addition, since these engines are not equipped with control equipment the operational activities of adjustment or occasional cleaning of control equipment also do not apply to the engines. Process modifications and startup may apply to engines, however, based on engineering judgment, the Division believes that such activities would be unlikely to occur for longer than six minutes. Therefore, the 30% opacity requirement has not been included in the operating permit.

- 40 CFR Part 63 Subpart ZZZZ requirements – management practices (oil and filter change, inspect air cleaner and inspect hoses and belts)
- 40 CFR Part 63 Subpart A requirements

Since this engine is not subject to any emission limitations, monitoring requirements, notification and reporting requirements the requirements in §§ 63.7, 63.8, 63.9 and 63.10 do not apply. In addition, since this emission unit is existing the requirement in § 63.5 (preconstruction review and notification requirements) do not apply. Finally, Table 8 of Subpart ZZZZ indicates that operation and maintenance requirements in 63.6(e) do not apply. Therefore, the permit will only include the prohibition and circumvention requirements in § 63.4.

Since this unit is not subject to APEN reporting or minor source construction permit requirements, the permit will not include any requirements for calculating emissions.

Section III – Permit Shield

- Revised the table in section 1 to more appropriately identify and justify the shield for the requirements in Colorado Regulation No. 1, Section III.A.
- Removed Reg 7 requirements from the table in section 1 (permit shield for non-applicable requirements) since certain Reg 7 requirements apply to equipment located at this facility.

Section IV – General Conditions

- Added a version date.
- The upset requirements in the Common Provisions Regulation (general condition 3.d) were revised December 15, 2006 (effective March 7, 2007) and the revisions were included in the permit.

- Replaced the reference to “upset” in Condition 5 (emergency provisions) and 21 (prompt deviation reporting) with “malfunction”.
- The title for Condition 6 was changed from “Emission Standards for Asbestos” to “Emission Controls for Asbestos” and in the text the phrase “emission standards for asbestos” was changed to “asbestos control”
- Condition 29 (VOC) was revised primarily to add the provisions in Reg 7, Section III.C as paragraph e although other minor language and format changes were made.

Appendices

- Appendix B and C were replaced with latest version. In addition, the table were revised to include the emergency generator.
- Changed the Division contact for reports in Appendix D.

PSCo - Greasewood Facility HAP Emissions

Unit	HAP Emissions (tons/yr)										total
	acetaldehyde	acrolein	benzene	toluene	Ethylbenzene	xylene	formaldehyde	n-hexane	2,2,4-trimethylpentane	methanol	
E001	0.04	0.04	0.08	0.03		0.01	0.38	0.00	0.00	0.04	0.62
E002	0.04	0.03	0.06	0.02		0.00	0.28	0.00	0.00	0.04	0.48
E003	0.05	0.04	0.10	0.03		0.01	0.46	0.00	0.00	0.05	0.75
E004	0.05	0.04	0.10	0.03		0.01	0.46	0.00	0.00	0.05	0.75
Total	0.17	0.16	0.35	0.11	0.00	0.03	1.59	0.00	0.00	0.18	2.59

Engine emissions are based on most conservative emission factor for each pollutant.